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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,154	10/22/2003	Ching-Yu Hung	TI-35348	9150

23494 7590 04/19/2007  
TEXAS INSTRUMENTS INCORPORATED  
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EXAMINER
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WANG, CLAIRE X

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/692,154

Applicant(s)

HUNG ET AL.

Examiner

Claire Wang

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Schoolcraft et al. (US 6,466,333 B2).

As to claim 1, Schoolcraft et al. (from this point forward shall be referred to as Schoolcraft) teaches a method of tetrahedral interpolation (Col. 1, lines 8-11), comprising the steps of: (a) receive a color space input point (pixel of the input image; Col. 11, line 43); (b) compute a base point (base address; Col. 11, line 58) and three differentials (Col. 11, lines 65-67; Col. 12, lines 1-3)) for said input point; (c) compare said three differentials (Table V); (d) compute tetrahedron vertices from the results of steps (b) and (c) (Table V), a first one of said vertices being said base point (look-up table 34; Col. 6, lines 30-32); (e) find output values for each of said vertices (Table I; Col. 6, lines 34-59); (f) compute an interpolated output value for said input point as the sum of the output value of said base point plus the inner product of said differentials in size order with corresponding differences of said output values for said vertices (Table III).

As to claim 2, Schoolcraft teaches wherein: (a) said output values of step (e) are a single color value for each vertex (look-up table 34 has a cube output representing each input; a cube has 8 vertices and therefore can use one of its vertices to represent an input value; Col. 6, lines 4-10 and lines 23-28).

As to claim 3, Schoolcraft teaches wherein: (a) said output values of step (e) are three color values for each vertex (look-up table 34 has a cube output representing each input; a cube has 8 vertices and therefore can use three of its vertices to represent an input value; Col. 6, lines 4-10 and lines 23-28).

As to claim 4, Schoolcraft teaches wherein: (a) said output values of step (e) are four color values for each vertex (look-up table 34 has a cube output representing each input; a cube has 8 vertices and therefore can use four of its vertices to represent an input value; Col. 6, lines 4-10 and lines 23-28).

As to claim 5, Schoolcraft teaches wherein: (a) said output values of step (e) are six color values for each vertex (look-up table 34 has a cube output representing each input; a cube has 8 vertices and therefore can use all 8 of its vertices to represent an input value; Col. 6, lines 4-10 and lines 23-28).

As to claim 6, it differs from claim 1 only in that claim 1 is a method claim whereas claim 6 is the system of claim 1. Thus claim 6 is analyzed previously discussed as respect to claim 1 (Fig. 1 shows the system Schoolcraft's invention).

***Response to Arguments***

3. Applicant's arguments filed on February 1<sup>st</sup>, 2007 have been fully considered but they are not persuasive.

4. In remarks, applicants argued in substance that Schoolcraft Table III does not suggest an inner product of the differentials in size order with the corresponding differences of vertex outputs. Rather, Table III just lists the six possible relative sizes of the three differentials and the corresponding interpolation in terms of an inner product of differences of differentials with vertex outputs; that is, Table III has differences of differentials, whereas the claim is differences of vertex outputs. Further, Schoolcraft FIG.8 computes the differentials in step S807, but then computes the entries in the temporary lookup Table V in step S808 without any differential size ordering, and computes the index in step S809, etc. This does not suggest claim 1.

5. In response to applicant's argument, Examiner would like to point out that claim language is given its broadest reasonable interpretation. The specification is not the measure of invention. Therefore, limitations contained therein cannot be read into the claims for the purpose of avoiding the prior art. *Ir re Sporck*, 55CCPA 743, 386 F. 2d 924, 155 USPQ 687 (1968). In the instant case, first, Schoolcraft shows the interpolation equations in Table III. The equation:

$$V = [(dx)V0 + (dy - dx)V3 + (dz - dy)V1 + (16 - dz)V7]/16$$

can be rearranged to look like the following:

$$V = dx(V0 - V3)/16 + dy(V3 - V1)/16 + dz(V1 - V7)/16 + V7$$

Therefore, the above equation clearly demonstrates the inner product of the differentials with the corresponding differences of vertex outputs. This may be applied to all the equations in table III. Second, the conditional statement where if  $dz \geq dy > dx$  (P is in tetrahedron 41) clearly shows that there is an order to the differentials  $dz$ ,  $dy$  and  $dx$ . The rest of the conditional statements within Table III are the different possibilities of arranging the differentials under different conditions.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

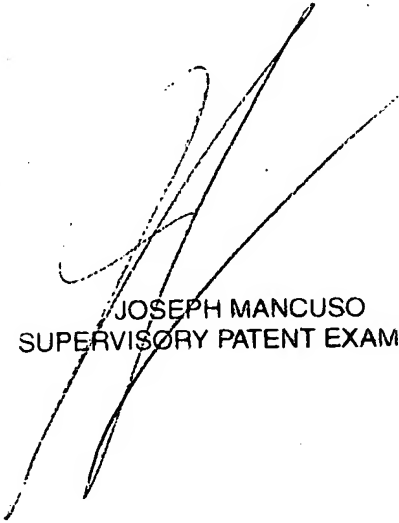
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire Wang whose telephone number is 571-270-1051. The examiner can normally be reached on Mid-day flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Claire Wang  
04/11/2007



JOSEPH MANCUSO  
SUPERVISORY PATENT EXAMINER